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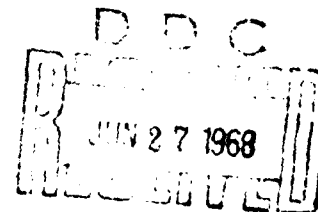
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DEPARTMENT OF THE ARMY

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STUDY BY THE METHOD OF IMMUNOFLUORESCENCE OF ELIMINATION OF CELLS
CONTAINING GAMMA GLOBULIN AND A RHEUMATOID FACTOR IN THE SPUTUM

Bolletino della Societa Italiana di Biologia Sperimentale
(Bulletin of the Italian Society of Experimental Biology)

Vol. XXXIX, pages 1379-1381, 1963

L. Bonomo and A. Tursi

In the study of dysproteinemia in subjects with chronic bronchitis, we wanted to demonstrate, parallelly with the loss of proteins in the sputum (Note: Cf. this bulletin, Vol. XXXIX, 1963, page 1375), the elimination with the sputum of immunologically competent cells.

For this purpose we examined the sputum in chronic bronchitis or other dysproteinemic conditions in which there was chronic expectoration.

We used the techniques of immunofluorescence to demonstrate in the sputum either cells containing gamma globulin or cells containing an anti-gamma-globulinic factor of rheumatoid type, in conditions in which seropositivities of this type existed.

In this note we set forth the first results of our study.

Material and Techniques -- The sputum samples were collected in Petri dishes, and immediately afterwards, in order to prevent deterioration of the cellular elements, they were filtered, spread on slides, and fixed in acetone at 4° C.

As for the reactives used and the methods of coloration, we refer to the preceding note (Note: *ibid.*, page 1377).

Results -- The results obtained are set forth in the table.

Summary and Conclusions -- Our results demonstrate the presence of cells containing gamma globulin in a sizeable percentage of patients with chronic bronchitis, especially in those subjects in which marked dysproteinemia with hyper-gamma globulinemia existed (in particular, in a case of myeloma, No 2).

Case Material	Dysproteinemia	Serum Yield with Human FII (reaction to Heller- R.A. ¹ test)	COLORATIONS				
			Flourescent Anti- Gamma-Globulinic Serum	2-Me + Fluores- cent Anti-Gamma- Globulinic Serum	Flourescent Aggre- gated FII	2-Me + Flourescent Aggregated FII	Mixed ²
1. L.R. Chr. Bronchitis	++	++	+	+	+	-	+
2. Q.P. Chr. Bronchitis and Myeloma	++	+	++	++	+	+	+
3. M.E. Chr. Bronchitis	++	+	+	+	-	-	-
4. R.G. Chr. Bronchitis	+	+	++	++	-	-	-
5. D.R. Chr. Bronchitis	+++	++	++	++	+	-	+
6. S.E. Chr. Bronchitis	+	-	-	-	-	-	-
7. G.B. Chr. Bronchitis	+	-	+	+	-	-	-
8. S.F. Chr. Bronchitis	+	-	+	+	-	-	-
9. R.P. Chr. Bronchitis	+	-	+	+	-	-	-
10. D.A. Chr. Bronchitis	+	-	-	-	-	-	-
11. D.Z. Chr. Bronchitis	+	-	+	+	-	-	-

¹ R.A.: presumably reazione albuminica, albumin reaction.

² Aggregated FII stained with rhodamine which is followed with fluorescent anti-gamma-globulinic serum, or vice versa. We considered the reaction positive only when it was so with both reactives.

Moreover, the presence is observed of cells containing an anti-gamma-globulinic factor of rheumatoid type -- that is, reagents with aggregated and fluorescent human gamma globulin (F_{II} fraction), in those patients who had the highest serologic titers of positivity for the rheumatoid factor (RF) (case nos. 1, 2 and 5).

The cells containing gamma globulin or RF were for the most part plasmacellular and to a minor extent were lymphomonocellular. The morphologic characteristics of these cellular elements, seen in fluorescence, were checked by observing the sputum specimens themselves with the conventional May-Gruwald-Giemsa coloration.

Checking a considerable number of plasma cells, many of them active in the globulinopoietic sense (immunologically competent cells) for elimination with the sputum in cases of chronic bronchitis and other dysproteinemic conditions would seem to be interesting.

This fits in with the presence of foci of chronic pulmonary inflammation and with the wealth of reticulohistiocytic elements in the lungs. The importance of chronic expectoration as a dysproteinemizing mechanism should be emphasized, both for the chronic loss of proteins which we have demonstrated ([Note]: This bulletin, Vol. XXXIX, 1963, page 1375) and for the elimination of active cells in protein synthesis.

The passage of rheumatoid macroglobulins in the sputum confirms the existence of these mechanisms.